WHAT IS CLAIMED IS:

1. A laser shock peening apparatus comprising:

a laser unit for generating a primary laser beam along a primary beam path,

the laser unit including a pulsed free running oscillator with only a single lasing rod,

an electro-optic switch external to the free running laser oscillator and operably disposed along the primary beam path of the primary laser beam to block the initial slow rise time of the primary laser beam from the free running oscillator and reject energy away from the primary beam path, and

at least one optical transmission circuit for forming at one stationary laser beam from the primary laser beam and directing the one stationary laser beam towards at least one laser shock peening target area.

2. An apparatus as claimed in claim 1 further comprising a dump path from the electro-optic switch to a dump and along which the energy is rejected away from the primary beam path.

3. An apparatus as claimed in claim 2 further comprising a delay generator controllably connected to the electro-optic switch for triggering the electro-optic switch.

4. An apparatus as claimed in claim 1 wherein the electro-optic switch is a Pockels cell.

5. An apparatus as claimed in claim 4 further

comprising a dump path from the electro-optic switch to a dump and along which the energy is rejected away from the primary beam path.

6. An apparatus as claimed in claim 5 further comprising a delay generator controllably connected to the Pockels cell for triggering the Pockels cell.

7. An apparatus as claimed in claim 6 further comprising a fast photodiode operably disposed in the laser unit for measuring an initial laser output pulse from the laser oscillator and operably connected to the delay generator for triggering the delay generator to switch the Pockels cell.

8. An apparatus as claimed in claim 7 further comprising a fluid nozzle directed towards the laser shock peening area.

9. An apparatus as claimed in claim 7 further comprising:

a beam splitter operably located after the electro-optic switch along the primary beam path for splitting the primary laser beam along two optical transmission circuits which include the one optical transmission circuit,

the two optical transmission circuits operable for forming two stationary laser beams which include the one stationary laser beam, and

the two optical transmission circuits further operable for the directing the stationary laser beams towards two laser shock peening target areas which

include the one laser shock peening target area.

10. An apparatus as claimed in claim 7 further comprising a fluid nozzle directed towards each of the laser shock peening areas.

11. An apparatus as claimed in claim 1 further comprising a fluid nozzle directed towards the laser shock peening area.

12. An apparatus as claimed in claim 11 further comprising a dump path from the electro-optic switch to a dump and along which the energy is rejected away from the primary beam path.

13. An apparatus as claimed in claim 11 wherein the electro-optic switch is a Pockels cell.

14. An apparatus as claimed in claim 13 further comprising a dump path from the Pockels cell to a dump and along which the energy is rejected away from the primary beam path.

15. An apparatus as claimed in claim 14 further comprising a delay generator controllably connected to the Pockels cell for triggering the Pockels cell.

16. An apparatus as claimed in claim 15 further comprising a delay generator controllably connected to the Pockels cell for triggering the Pockels cell.

17. An apparatus as claimed in claim 16 further

comprising a fast photodiode operably disposed in the laser unit for measuring an initial laser output pulse from the laser oscillator and operably connected to the delay generator for triggering the delay generator to switch the Pockels cell.

18. An apparatus as claimed in claim 1 further comprising:

at least one flash lamp operably disposed for actuating the lasing rod,

a power supply driveably connected to the flash lamp, and

the power supply set to power the flash lamp at a frequency of about 10Hz or higher.

19. An apparatus as claimed in claim 1 further comprising:

at least one pair of flash lamps operably disposed for actuating the lasing rod,

a power supply driveably connected to the flash lamps, and

the power supply set to power the flash lamp at a frequency of about 10Hz or higher.

20. An apparatus as claimed in claim 19 wherein the electro-optic switch is a Pockels cell.

21. An apparatus as claimed in claim 20 further comprising a dump path from the electro-optic switch to a dump and along which the energy is rejected away from the primary beam path.

22. An apparatus as claimed in claim 21 further

comprising a delay generator controllably connected to the Pockels cell for triggering the Pockels cell.

23. An apparatus as claimed in claim 22 further comprising a fast photodiode operably disposed in the laser unit for measuring an initial laser output pulse from the laser oscillator and operably connected to the delay generator for triggering the delay generator to switch the Pockels cell.

24. An apparatus as claimed in claim 23 further comprising:

a beam splitter operably located after the electro-optic switch along the primary beam path for splitting the primary laser beam along two optical transmission circuits which include the one optical transmission circuit,

the two optical transmission circuits operable for forming two stationary laser beams which include the one stationary laser beam, and

the two optical transmission circuits further operable for the directing the stationary laser beams towards two laser shock peening target areas which include the one laser shock peening target area.

25. An apparatus as claimed in claim 24 further comprising a fluid nozzle directed towards each of the laser shock peening areas.

26. An apparatus as claimed in claim 20 further comprising:

the power supply, the flash lamps, the lasing rod set to fire laser output pulses from the lasing

rod having an energy of greater than 1J, a rise time of about several hundred microseconds, and a pulse duration in a range of about a few hundred microseconds to 1 millisecond, and

the Pockels cell set to sharpen the primary laser beam so that it has at least 1 Joule of energy.

27. An apparatus as claimed in claim 26 further comprising a dump path from the electro-optic switch to a dump and along which the energy is rejected away from the primary beam path.

28. An apparatus as claimed in claim 27 further comprising a delay generator controllably connected to the Pockels cell for triggering the Pockels cell.

29. An apparatus as claimed in claim 28 further comprising a fast photodiode operably disposed in the laser unit for measuring an initial laser output pulse from the laser oscillator and operably connected to the delay generator for triggering the delay generator to switch the Pockels cell.

30. An apparatus as claimed in claim 29 further comprising:

a beam splitter operably located after the electro-optic switch along the primary beam path for splitting the primary laser beam along two optical transmission circuits which include the one optical transmission circuit,

the two optical transmission circuits operable for forming two stationary laser beams which include the one stationary laser beam, and

the two optical transmission circuits further operable for the directing the stationary laser beams towards two laser shock peening target areas which include the one laser shock peening target area.

31. An apparatus as claimed in claim 30 further comprising a fluid nozzle directed towards each of the laser shock peening areas.